

REMARKS

Claims 1-3 are presently pending in the application. Claim 1 has been amended to assure grammatical and idiomatic English and improved form under United States practice. The amendments are not made to distinguish the invention over the prior art or narrow the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 2 and 3 have been added to assure Applicant the degree of protection to which his invention entitles him.

Claim 1 was rejected under 35 U.S.C. §103(a) as being unpatentable over Loeffler, DE 19842532, in view of Clark, U.S. Reissue Patent 32,783. This rejection is respectfully traversed.

The claimed invention is directed to shift actuator for actuating, in a direction of shift, a shift lever, to operate a synchronizing device of a transmission. The synchronizing device has a synchronizing position.

In one embodiment, exemplified by the claims and illustratively depicted in the drawings, the shift actuator includes, with reference in particular to Figure 6, first and second electromagnetic solenoids 6b, 7b for actuating, in opposite directions, an operation member 50 coupled to the shift lever. Each of the solenoids includes a casing 61, 71, a fixed iron core 62b, 72b in the casing, a moving iron core 64b, 74b able to approach, and separate away from, the fixed iron core, an operation rod 63, 73 mounted on the moving iron core for movement therewith to move the operation member 50, and an electromagnetic coil 66, 76

arranged between the casing and the fixed and moving iron cores.

The fixed iron core and the moving iron core have opposing surfaces. The opposing surface of either the fixed iron core or the moving iron core has a stepped protuberance 621b, 721b formed thereon, while the opposing surface of the other of the fixed iron core and the moving iron core has a stepped recess 641b, 741b formed therein to correspond to the stepped protuberance. An edge 622b, 722b of the stepped protuberance and an edge 642b, 742b of the stepped recess are closest to each other at a position corresponding to the synchronizing position of the synchronizing device.

In one preferred embodiment, exemplified by claim 2 and illustratively depicted in Figure 6, each of the stepped protuberance and the stepped recess has a substantially uniform diameter over its length.

In another preferred embodiment, exemplified by claim 3 and illustratively depicted in Figure 18, each of the stepped protuberance and the stepped recess is tapered over its length.

Loeffler discloses a select actuator for actuating a shift lever of a transmission in a select direction. The select actuator includes first and second solenoids. Each of the solenoids includes a casing 24, 26, a fixed iron core (near 46) in the casing, a moving iron core 44 able to approach, and separate away from, the fixed iron core, and an electromagnetic coil 46 arranged between the casing and the fixed and moving iron cores. The fixed iron core and the moving iron core have opposing surfaces.

Claim 1 sets forth that the solenoids are for actuating an operation member coupled to the shift lever of the transmission. Claim 1 further sets forth that each solenoid includes an operation rod to move the operation member.

The Office Action contends that Loeffler's select actuator includes an operation member 18 adapted to be coupled to the shift lever 16, and an operation rod 18 mounted on the moving iron core for movement therewith to move the operation member. This contention is traversed.

The Examiner's analysis says that Loeffler's component 18 is both the operation member and the operation rod. In that case, component 18 must move itself!

If Loeffler's solenoid has an operation rod, then it has no operation member. Conversely, if Loeffler's solenoid has an operation member, then it has no operation rod. In either case, Loeffler does not provide a proper basis for rejection of the claims of the present application.

The Office Action further contends that the position in which the edge of Loeffler's moving iron core and the edge of his fixed iron core are closest to each other corresponds to a synchronizing position. However, there is no indication in Loeffler of any synchronizing position. The Examiner is postulating a synchronizing position purely through hindsight, an improper basis for rejection. *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1780, 1783 (Fed. Cir. 1999).

Clark discloses a solenoid which includes a casing 31, a fixed iron core 39, a moving iron core 45 able to approach and separate away from the fixed iron core, an operation rod 60 mounted on the moving iron core for movement therewith, and a coil 34 between the casing and the fixed and moving iron cores. The moving iron core has a protuberance, and the fixed iron core has a recess 56.

The Office Action contends that the position in which the edge of Clark's moving iron

core and the edge of his fixed iron core are closest to each other corresponds to a synchronizing position. However, there is no indication in Clark of any synchronizing position. Again, the Examiner is postulating a synchronizing position purely through hindsight, an improper basis for rejection. *In re Fine, supra*.

The claimed invention is a shift actuator for a transmission. The shift actuator includes solenoids, each of which has a stepped protuberance, formed on the opposing surface of one of the moving iron core and the fixed iron core, and a stepped recess, formed on the opposing surface of the other of the moving iron core and the fixed iron core. A position at which an edge of the protuberance and an edge of the recess are closest to each other corresponds to the synchronizing position of the synchronizing device of the shift lever. The advantages provided by the claimed shift actuator are set forth in the specification, for example from page 18, line 22 to page 23, line 23.

Loeffler relates to a select actuator, not a shift actuator. There is no relationship between the operation stroke of Loeffler's solenoids 48, 48 and the synchronizing position of the synchronizing device of the shift lever. Thus, Loeffler teaches nothing about any relationship between the operation stroke of a solenoid and the synchronizing position of the synchronizing device of a shift lever.

Clark relates to a particular solenoid and has no suggestion of either a shift actuator or a select actuator. Thus, Clark teaches nothing about any relationship between the operation stroke of a solenoid and the synchronizing position of the synchronizing device of a shift lever.

In view of the foregoing, Applicant submits that claims 1-3, all the claims presently

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pending in the application, are patentably distinct over the prior art of record and are allowable, and that the application is in condition for allowance. Such action would be appreciated.


Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned attorney at the local telephone number listed below to discuss any other changes deemed necessary for allowance in a telephonic or personal interview.

To the extent necessary, Applicant petitions for an extension of time under 37 CFR §1.136. The Commissioner is authorized to charge any deficiency in fees, including extension of time fees, or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

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